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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,696	03/28/2005	Jacques Brochu	06670/0202695-US0	2024
7278	7590	06/27/2006	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			AMRANY, ADI	
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			2836	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/529,696	BROCHU ET AL.	
	Examiner	Art Unit	
	Adi Amrany	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicants' arguments, see Remarks, filed May 8, 2006, with respect to the rejections of claims 1-4, 7-8 and 10 under 35 U.S.C. 102(b) and claims 5-6, 9 and 11-13 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection is made in view of the teachings of Arnold (FR 2,745,430) and Couture (US 6,396,172).

Applicants stated in their Remarks that Pelletier did not teach how to carry out a method of de-icing power lines (page 9, lines 17-29). Examiner submits that Pelletier does not provide the motivation for applying the teachings of Pelletier to a method for de-icing. This motivation is provided by Arnold, as discussed below. Couture discloses the use of switches (circuit breakers) to selectively couple segments of the electrical line.

Specification

2. The disclosure is objected to because Page 12 of the description of the embodiment associated with figure 10B appears to be inaccurate for the following reasons:

- a. Lines 16-17; the circuit breaker (34) is short-circuited before the internal angle of the PST (2) is adjusted to zero. This is the reverse order of the method of claim 6.

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b. Lines 19-20; the phrase "the grid is configured as before to *prevent* the concentration of charging current." As disclosed in figure 10A, the grid is purposefully configured to concentrate the charging current (page 12, lines 5-6). It appears "prevent" was inserted in error.

c. Line 21; "the circuit breaker 34 is opened and thus the PST 2 is short-circuited" is incorrect. The PST is short-circuited when the circuit breaker is closed.

Appropriate correction is required.

Claim Objections

3. Claims 14 and 15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation of alternating current is inferred in the language of independent claims 1 and 10, which recite an adjustable/fixed angular offset.

The examiner's amendment to cancel these claims has been removed as the application is not in condition for allowance.

4. The objections to the applicants' use of circuit breaker in the non-final rejection (February 8, 2006) have been removed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Arnold (FR 2,745,430).

With respect to claim 10, Arnold discloses the apparatus necessary to complete the recited method of de-icing energized electric lines comprising the steps of:

providing an apparatus capable of producing a fixed angular offset of current applied between its terminals (figure 3; abstract, paragraph 1), comprising:

selecting segments of electrical lines to be de-iced (inherent step);

connecting the apparatus in series with the segments of the loops to be de-iced (abstract; paragraph 2, sentence 2);

connecting the apparatus in series with the segments of the loop to be de-iced (figure 3);

activating the apparatus (inherent step);

connecting the apparatus in circuit with the loop, the apparatus and the line segments being previously chosen so that the angular offset produced by the apparatus imposes an increase in current flowing in at least one of the segments of the loop (abstract, paragraph 2, sentence 3), thus causing the de-icing of said

at least one of the segments of the loop (abstract, paragraph 2, sentence 4, "heating current").

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4 and 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelletier (US 5,907,239) in view of Arnold (FR 2,745,430).

With respect to claim 1, Pelletier discloses a method of *energizing* electric lines comprising the steps of:

providing an apparatus capable of producing an adjustable angular offset of current applied between its terminals (figure 1, item 6; column 6, lines 13-22):

selecting segments of the energized electrical lines to be de-iced (figure 1, items 4 and 6; column 6, lines 23-27);

connecting the segments to form a loop (figure 1, connection of items 4, 46, 6, and 44; column 9, lines 22-26);

connecting the apparatus in series with the segments of the loop to be de-iced (figure 1, item 6 in series with transmission line between 48 and 50); and

activating the apparatus;

Pelletier does not expressly disclose adjusting the angular offset of the apparatus to impose an increase in current flowing in at least one of the segments of the loop, thus causing the de-icing of said at least one of the segments of the loop (column 8, lines 43-45; column 16, lines 5-13).

Arnold discloses a method for de-icing supply conductors by coupling a transformer to a section of an electric line. The transformer adjusts the angular offset to increase the current (heating current), which heats the electric lines and melts the ice (Abstract, paragraphs 1-2).

Pelletier and Arnold are analogous because they are from the same field of endeavor, namely providing auxiliary power through a transformer coupled to an electric power line.

At the time of the invention by applicants, it would have been obvious to combine the apparatus capable of producing an adjustable angular offset of current applied between its terminals disclosed in Pelletier with the method of increasing the angular offset of current disclosed in Arnold.

The motivation for doing so would have been to increase current in the electrical lines, thereby increasing losses along the lines to create heat and melt ice.

With respect to claim 2, Pelletier and Arnold discloses the method of de-icing according to claim 1, and Pelletier further discloses where the apparatus comprises a phase shifting transformer (figure 1, item 10; column 8, lines 43-47) provided with a tap changer (figure 10, item 70; column 11, lines 1-13) for adjusting the angular offset.

With respect to claim 3, Pelletier and Arnold disclose the method of de-icing according to claim 2, and Pelletier further discloses the apparatus comprises a capacitor (figure 8B, item 12; column 10, lines 48-50) in parallel with the phase shifting transformer.

With respect to claim 4, Pelletier and Arnold disclose the method of de-icing according to claim 1, and Pelletier further discloses the apparatus further comprises a circuit breaker further comprising the steps of:

measuring a phase displacement at the terminals of the apparatus
(column 6, lines 37-43);

adjusting the internal angle of the apparatus to a same value of the phase displacement measured (column 6, lines 43-47);

and manipulating the circuit breaker of the apparatus into a closed position
(column 7, lines 31-35).

Pelletier discloses that the transformer branch is switched into service, which is evidence of a switching mechanism or circuit breaker.

The internal angle of the apparatus and method disclosed in Pelletier can be varied over an angle range (column 12, lines 17-18), and it would be obvious to a person skilled in the art that one of the settings of the angle of the apparatus would be the same value of the phase displacement. And when the angles are the same, the circuit breaker mechanism will be switched.

With respect to claim 7, Pelletier and Arnold disclose the method of de-icing according to claim 1, and further, the electric lines disclosed in Pelletier are energy transport lines, as they are used to carry and distribute power over AC networks.

With respect to claim 8, Pelletier and Arnold disclose the method of de-icing according to claim 1, and further, the electric lines disclosed in Pelletier are energy distribution line, as they are used to carry and distribute power over AC networks.

With respect to claim 9, Pelletier and Arnold disclose the method of de-icing according to claim 8. Arnold further discloses the apparatus is mobile (abstract, paragraph 3, sentence 1) and the distribution lines are connectable to a sectioning point by means of an interruptor (figure 3, items 5, 5') having opposing terminals, the terminals of the apparatus being connected to the terminals of the interruptors, the interruptor being manipulated into an open position during de-icing.

With respect to claim 10, Pelletier discloses a method for *energizing* electrical lines comprising the steps of:

- providing an capable of producing a fixed angular offset of current applied between its terminals (figure 1, item 6; column 6, lines 13-22), comprising:

- selecting segments of electrical lines to be de-iced (figure 1, items 4 and 6; column 6, lines 23-27);

- connecting the segments so as to form a loop (figure 1, connection of items 4, 46, 6, and 44; column 9, lines 22-26);

- connecting the apparatus in series with the segments of the loop to be de-iced (figure 1, item 6 in series with transmission line between 48 and 50); and

activating the apparatus;

Pelletier does not expressly disclose connecting the apparatus in circuit with the loop, the apparatus and the line segments being previously chosen (column 12, lines 14-30) so that the angular offset produced by the apparatus imposes an increase in current flowing in at least one of the segments of the loop, thus causing the de-icing of said at least one of the segments of the loop.

Arnold discloses a method for de-icing energized electrical lines by coupling a transformer to a section of an electric line. The transformer creates an angular offset produced by the apparatus to impose an increase in current flow (heating current), which heats the electric lines and melts the ice (Abstract, paragraphs 1-2).

Pelletier and Arnold are analogous because they are from the same field of endeavor, namely providing auxiliary power through a transformer coupled to an electric power line.

At the time of the invention by applicants, it would have been obvious to combine the apparatus capable of producing an adjustable angular offset of current applied between its terminals disclosed in Pelletier with the method of increasing the angular offset of current disclosed in Arnold.

The motivation for doing so would have been to increase current in the electrical lines, thereby increasing losses along the lines to create heat and melt ice.

With respect to claim 11, Pelletier and Arnold disclose the method for de-icing according to claim 10. Arnold further discloses the apparatus is connected with the segments of the loop by an interrupting element (figure 3, items 5, 5'), the apparatus

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being connected in circuit with the loop by manipulating the interrupting elements.

Arnold discloses that the apparatus may be removed to interrupt the heating current (abstract, paragraph 2, lines 6-8).

With respect to claim 12, Pelletier and Arnold disclose the method for de-icing according to claim 11, and Arnold further discloses the interrupting element is an interruptor (figure 3, items 5 and 5'). An interruptor, switch, and circuit breaker are all interrupting elements and are not patentably distinct from each other for the intended use of the method of claim 12.

With respect to claim 13, Pelletier and Arnold disclose the method for de-icing according to claim 11, and Arnold further discloses the interrupting element comprises a circuit breaker (figure 3, items 5 and 5'). Arnold discloses that the interrupting elements are triggered to disconnect the apparatus upon reaching a maximum conductor temperature.

Claims 14 and 15 are rejected over Pelletier in view of Arnold because the claims do not further limit independent claims 1 and 10, respectively, which are rejected as discussed above

9. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelletier, in view of Arnold, and in further view of Couture (US 6,396,172).

With respect to claim 5, Pelletier and Arnold disclose the method according to claim 4, but do not expressly disclose manipulating a line circuit breaker on one of the segments of the loop into an open position for connecting charging current in the other segment of the loop.

Couture disclose an apparatus for deicing transmission lines comprising manipulating switching devices to selectively couple segments for concentrating the current through specific conductors (figure 1, item 6; column 4, lines 53-58; column 5, lines 8-24).

Pelletier, Arnold and Couture are analogous because they are from the same field of endeavor, namely the deicing of transmission lines.

At the time of the invention by applicants, it would have been obvious to one of ordinary skill in the art to combine the method of deicing disclosed in Pelletier and Arnold with the switching device disclosed in Couture.

The motivation for doing so would have been to concentrate current in selected segments to melt ice on those segments.

With respect to claim 6, Pelletier and Arnold disclose the method of de-icing according to claim 1 and Pelletier further discloses the internal angle of the apparatus and method can be varied over an angle range (column 12, lines 17-18), including a value of zero.

Pelletier does not expressly disclose the apparatus is then activated by:

manipulating a circuit breaker connected between the segments of the loop in a closed position so as to short-circuit the apparatus;

manipulating a line circuit breaker on one of the segments of the loop into an open position for concentrating a charging current in the other segment of the loop;

manipulating the circuit breaker connected between the segments of the loop in an open position.

Couture discloses manipulating circuit breakers ("switching devices"; figure 1, item 6; column 4, lines 53-58; column 55, lines 8-24) on one of the segments of the loop into an open position for concentrating a charging current in the other segment of the loop. It is inherent in Couture that once the electric lines are deiced, the circuit breakers are opened to return the system to its original configuration.

During method steps where the Pelletier apparatus is configured with an offset angle of zero or where the apparatus is short-circuited, the energized electric lines perform as though the apparatus is not present. Both method steps act to effectively shut off and bypass the apparatus of the present application. Claim 6 recites method steps of disconnecting/bypassing the apparatus in order to maneuver the circuit breakers to place the segments in the proper configuration for deicing.

Pelletier, Arnold and Couture are analogous because they are from the same field of endeavor, namely the deicing of transmission lines.

At the time of the invention by applicants, it would have been obvious to one of ordinary skill in the art to combine the method of deicing disclosed in Pelletier and Arnold with the switching devices disclosed in Couture.

The motivation for doing so would have been to select segments for deicing prior to engaging the apparatus.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA


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PRIMARY EXAMINER